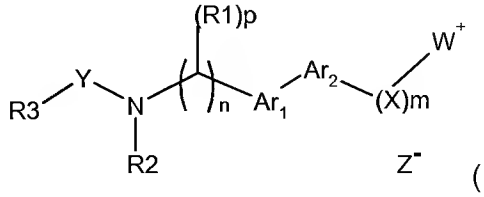
Amendments to the claims

1. (Previously Presented): A compound according to formula I herein below:



(I)

wherein

Ar1 and Ar2, are independently, selected from the group consisting of optionally substituted phenyl and optionally substituted monocyclic heteroaryl;

W^+ is $N^+R_6R_7R_8$, or an optionally substituted saturated or partially unsaturated 4-10 membered ring system in which one or more rings contain one or more quaternary ammonium nitrogens, and optionally contain one or more secondary nitrogens, tertiary nitrogens, O, or S;

Z^- is a pharmaceutically acceptable counter ion, selected from the group consisting of I^-, Br^-, Cl^-, F^-, $CF3COO^-$, mesylate, and tosylate;

X is C(R1)p, or C(O); wherein, when X is C(R1)p, m is an interger from 0 to 3; when X is C(O), m is 1;

p is an interger from 0 to 2;

n is an interger from 0 to 3;

Y is C(O), S(O)q, HNC(O), or OC(O); wherein, q is 1 or 2;

R1 and R2 are independently selected from the group consisting of hydrogen, optionally substituted C_1-C_{10} alkyl, optionally substituted C_3-C_{10} cycloalkyl, optionally substituted C_3-C_{10} cycloalkyl alkyl, optionally substituted heterocylic, optionally substituted heterocyclicalkyl, optionally substituted alkenyl, optionally substituted aryl, optionally substituted aryl alkyl, optionally substituted heteroaryl, and optionally substituted heteroaryl alkyl;

R3 is selected from the group consisting of optionally substituted aryl, optionally substituted heteroaryl, optionally substituted alkenyl, optionally substituted C_1-C_{10} alkyl, optionally substituted C_3-C_{10} cycloalkyl, optionally substituted C_3-C_{10} cycloalkyl alkyl, optionally substituted aryl alkyl, and optionally substituted heteroaryl alkyl; wherein, when substituted, a group is

substituted by one or more radicals selected from the group consisting of halogen, cyano, hydroxy, hydroxy substituted C_{1-10}alkyl, C_{1-10} alkoxy, $S(O)_{m'}$ C_{1-10} alkyl, C(O)R4, $C(O)NR_4R_5$; C(O)OH; $S(O)_2NR_4R_5$, $NHC(O)R_4$, $NHS(O)_2R_4$, C_{1-10} alkyl, alkenyl, halosubstituted C_{1-10} alkyl, optionally substituted aryl, optionally substituted arylalkyl, optionally substituted heteroaryl, optionally substituted heteroaryl alkyl, wherein these aryl or heteroaryl moieties may be substituted one to two times by halogen, hydroxy, hydroxy substituted alkyl, C_{1-10} alkoxy, $S(O)_{m'}C_{1-10}$ alkyl, C_{1-10} alkyl, or halosubstituted C_{1-10} alkyl;
m' is 0, 1, or 2;

R_4 and R_5, are independently, selected from the group consisting of hydrogen, optionally substituted C_{1-10} alkyl, optionally substituted alkenyl, optionally substituted C_3-C_{10} cycloalkyl, optionally substituted C_3-C_{10} cycloalkyl alkyl, optionally substituted aryl, optionally substituted aryl alkyl, optionally substituted heteroaryl, and optionally substituted heteroaryl alkyl; or R_4 and R_5 together with the nitrogen to which they are attached form a 5 to 7 member ring which may optionally comprise an additional heteroatom selected from O, and S; and

R_6, R_7, and R_8, are independently, selected from the group consisting of hydrogen, optionally substituted C_{1-10} alkyl, optionally substituted alkenyl, optionally substituted C_3-C_{10} cycloalkyl, optionally substituted C_3-C_{10} cycloalkyl alkyl, optionally substituted aryl, optionally substituted arylalkyl, optionally substituted heteroaryl, optionally substituted heteroarylalkyl, optionally substituted heterocyclic, and optionally substituted heterocyclicalkyl; or R_7 and R_8 together with the nitrogen to which they are attached form a 5 to 7 member ring which may optionally comprise an additional heteroatom selected from O, N and S;

or any other pharmaceutically acceptable salt thereof.

2. (Currently Amended): A compound according to claim 1 ~~selected from the group consisting of~~ <u>wherein</u>:

Ar1 and Ar2, are independently, selected from the group consisting of optionally substituted phenyl and optionally substituted monocyclic heteroaryl;

W^+ is an optionally substituted saturated or partially unsaturated 4-10 membered ring system in which one or more rings contain one or more

quaternary ammonium nitrogens, and optionally contain one or more secondary nitrogens, or tertiary nitrogens;

Z^- is a pharmaceutically acceptable counter ion, selected from the group consisting of I^-, Br^-, Cl^-, F^-, $CF3COO^-$, mesylate, and tosylate;

X is C(R1)p, m is 1;

p is 2;

n is an interger from 1 to 3;

Y is C(O), or S(O)q;wherein, q is 1 or 2;

R1 is hydrogen;

R2 is selected from the group consisting of hydrogen, optionally substituted C_1-C_{10} alkyl, optionally substituted alkenyl, optionally substituted C_3-C_{10} cycloalkyl, optionally substituted C_3-C_{10} cycloalkyl alkyl, optionally substituted heterocylic, optionally substituted heterocyclicalkyl, optionally substituted aryl, optionally substituted aryl alkyl, optionally substituted heteroaryl, and optionally substituted heteroaryl alkyl;

R3 is selected from the group consisting of optionally substituted aryl, optionally substituted heteroaryl, optionally substituted alkenyl, optionally substituted C_1-C_{10} alkyl, optionally substituted C_3-C_{10} cycloalkyl, and optionally substituted C_3-C_{10} cycloalkyl alkyl; wherein, when substituted, a group is substituted by one or more radicals selected from the group consisting of halogen, cyano, hydroxy, hydroxy substituted C_{1-10}alkyl, C_{1-10} alkoxy, $S(O)_{m'}$ C_{1-10} alkyl, C(O)R4, $C(O)NR_4R_5$; C(O)OH; $S(O)_2NR_4R_5$, $NHC(O)R_4$, $NHS(O)_2R_4$, C_{1-10} alkyl, alkenyl, halosubstituted C_{1-10} alkyl, optionally substituted aryl, optionally substituted arylalkyl, optionally substituted heteroaryl, optionally substituted heteroaryl alkyl, wherein these aryl or heteroaryl moieties may be substituted one to two times by halogen, hydroxy, hydroxy substituted alkyl, C_{1-10} alkoxy, $S(O)_{m'}C_{1-10}$ alkyl, C_{1-10} alkyl, or halosubstituted C_{1-10} alkyl; and m' is 0, 1, or 2;

R_4 and R_5, are independently, selected from the group consisting of hydrogen, optionally substituted C_{1-10} alkyl, optionally substituted alkenyl, optionally substituted C_3-C_{10} cycloalkyl, optionally substituted C_3-C_{10} cycloalkyl alkyl, optionally substituted aryl, optionally substituted aryl alkyl, optionally substituted heteroaryl, and optionally substituted heteroaryl alkyl; or R_4 and R_5 together with the nitrogen to which they are attached form a 5 to 7

member ring which may optionally comprise an additional heteroatom selected from O, and S; and

R_7 and R_8, are independently, selected from the group consisting of hydrogen, optionally substituted C_{1-10} alkyl, optionally substituted alkenyl, optionally substituted C_3-C_{10} cycloalkyl, optionally substituted C_3-C_{10} cycloalkyl alkyl, optionally substituted aryl, optionally substituted arylalkyl, optionally substituted heteroaryl, optionally substituted heteroarylalkyl, optionally substituted heterocyclic, and optionally substituted heterocyclicalkyl; or R_7 and R_8 together with the nitrogen to which they are attached form a 5 to 7 member ring which may optionally comprise an additional heteroatom selected from O, N and S;

or any other pharmaceutically acceptable salt thereof.

3. (Currently Amended): A compound according to claim 1 ~~selected from the group consisting of:~~ wherein:

Ar1 and Ar2, are independently, optionally substituted phenyl;

W^+ is an optionally substituted saturated or partially unsaturated 5-8 membered ring system in which one or more rings contain one or more quaternary ammonium nitrogens, and optionally contain one or more secondary nitrogens, or tertiary nitrogens;

Z^- is a pharmaceutically acceptable counter ion, selected from the group consisting of I^-, Br^-, Cl^-, F^-, CF3COO$^-$, mesylate, and tosylate;

X is C(R1)p;

R1 is hydrogen

p is 2;

m is 1;

n is 1;

Y is C(O), or S(O)q; wherein, q is 1 or 2;

R2 is selected from the group consisting of hydrogen, optionally substituted C_1-C_{10} alkyl, optionally substituted alkenyl, optionally substituted C_3-C_{10} cycloalkyl, optionally substituted C_3-C_{10} cycloalkyl alkyl, optionally substituted heterocylic, optionally substituted heterocyclicalkyl, optionally substituted aryl alkyl, and optionally substituted heteroaryl alkyl;

R3 is selected from the group consisting of optionally substituted aryl, optionally substituted heteroaryl, optionally substituted alkenyl, optionally

substituted C_1-C_{10} alkyl, optionally substituted C_3-C_{10} cycloalkyl, and optionally substituted C_3-C_{10} cycloalkyl alkyl; wherein, when substituted, a group is substituted by one or more radicals selected from the group consisting of halogen, cyano, hydroxy, hydroxy substituted C_{1-10}alkyl, C_{1-10} alkoxy, $S(O)_{m'}$ C_{1-10} alkyl, C(O)R4, $C(O)NR_4R_5$; C(O)OH; $S(O)_2NR_4R_5$, $NHC(O)R_4$, $NHS(O)_2R_4$, C_{1-10} alkyl, alkenyl, and halosubstituted C_{1-10} alkyl; wherein m' is 0, 1, or 2;

R_4 and R_5, are independently, selected from the group consisting of hydrogen, optionally substituted C_{1-10} alkyl, optionally substituted alkenyl, optionally substituted C_3-C_{10} cycloalkyl, optionally substituted C_3-C_{10} cycloalkyl alkyl, optionally substituted aryl, optionally substituted aryl alkyl, optionally substituted heteroaryl, and optionally substituted heteroaryl alkyl; or R_4 and R_5 together with the nitrogen to which they are attached form a 5 to 7 member ring which may optionally comprise an additional heteroatom selected from O, and S; and

R_7 and R_8, are independently, selected from the group consisting of hydrogen, optionally substituted C_{1-10} alkyl, optionally substituted alkenyl, optionally substituted C_3-C_{10} cycloalkyl, optionally substituted C_3-C_{10} cycloalkyl alkyl, optionally substituted aryl, optionally substituted arylalkyl, optionally substituted heteroaryl, optionally substituted heteroarylalkyl, optionally substituted heterocyclic, and optionally substituted heterocyclicalkyl; or R_7 and R_8 together with the nitrogen to which they are attached form a 5 to 7 member ring which may optionally comprise an additional heteroatom selected from O, N and S;

or any other pharmaceutically acceptable salt thereof.

4. (Previously Presented): A compound according to claim 1 selected from the group consisting of:

1-methyl-1-({3'-[({[4-(methyloxy)phenyl]sulfonyl}amino)methyl]-3-biphenylyl}methyl)piperidinium trifluoroacetate;

1-[(3'-{[(1,3-benzodioxol-5-ylcarbonyl)amino]methyl}-3-biphenylyl)methyl]-1-methylpiperidinium trifluoroacetate;

1-[(3'-{[(1,3-benzodioxol-5-ylcarbonyl)amino]methyl}-3-biphenylyl)methyl]-1-methylpiperazin-1-ium trifluoroacetate - trifluoroacetic acid (1:1);

1,1-dimethyl-4-({3'-[({[4-(methyloxy)phenyl]sulfonyl}amino)methyl]-3-biphenylyl}methyl)piperazin-1-ium trifluoroacetate - trifluoroacetic acid (1:1);

4-[(3'-{[(1,3-benzodioxol-5-ylcarbonyl)amino]methyl}-3-biphenylyl)methyl]-1,1-dimethylpiperazin-1-ium trifluoroacetate - trifluoroacetic acid (1:1);

1-[(3'-{[(1,3-benzodioxol-5-ylcarbonyl)amino]methyl}-3-biphenylyl)methyl]-1-methyl-3-oxopiperazin-1-ium trifluoroacetate;

4-[(3'-{[(1,3-benzodioxol-5-ylcarbonyl)amino]methyl}-3-biphenylyl)carbonyl]-1,1-dimethylhexahydro-1*H*-1,4-diazepin-1-ium trifluoroacetate - trifluoroacetic acid (1:1); and

4-{[3'-({[(3-cyanophenyl)carbonyl]amino}methyl)-3-biphenylyl]methyl}-1,1-dimethylpiperazin-1-ium trifluoroacetate - trifluoroacetic acid (1:1);

or any other pharmaceutically acceptable counter ion and/or salt.

5. (Previously Presented): A pharmaceutical composition for the treatment of muscarinic acetylcholine receptor mediated diseases comprising a compound according to claim 1 and a pharmaceutically acceptable carrier thereof.

6. (Previously Presented): A method of inhibiting the binding of acetylcholine to its receptors in a mammal in need thereof comprising administering a safe and effective amount of a compound according to claim 1.

7. (Previously Presented): A method of treating a muscarinic acetylcholine receptor mediated disease, wherein acetylcholine binds to said receptor, comprising administering a safe and effective amount of a compound according to claim 1.

8. (Previously Presented): A method according to claim 7 wherein the disease is selected from the group consisting of chronic obstructive lung disease, chronic bronchitis, asthma, chronic respiratory obstruction, pulmonary fibrosis, pulmonary emphysema and allergic rhinitis.

9. (Previously Presented): A method according to claim 8 wherein administration is via inhalation via the mouth or nose.

10. (Previously Presented): A method according to claim 9 wherein administration is via a medicament dispenser selected from a reservoir dry powder inhaler, a multi-dose dry powder inhaler or a metered dose inhaler.

11. (Previously Presented): A method according to claim 10 wherein the compound is administered to a human and has a duration of action of 12 hours or more.

12. (Previously Presented): A method according to claim 11 wherein the compound has a duration of action of 24 hours or more.

13. (Previously Presented): A method according to claim 12 wherein the compound has a duration of action of 36 hours or more.